



1907 Elevation Saved Galveston Church From Flooding

Full Mitigation Best Practice Story

Galveston County, Texas

Galveston Island, TX – In 1907, Galveston was still recovering from one of the nation's worst natural disasters - the hurricane of 1900, which had killed 6,000 people in a terrifying surge of wind, water, and debris. The bell tower of St. Patrick's Catholic Church crashed down into the church, killing 200 members who had sought sanctuary from the storm. It was all ruined – the walls, the roof, the ceiling, the bell tower, the pews, the pipe organ, and the stained glass windows, all tangled together in a massive, sodden heap.



By 1902, parishioners had rebuilt their church. The new structure was even grander than the original, although the bell tower was only half the height of the original.

Shortly after the church's reopening, Galveston County officials made a fateful decision to build a 17-foot-high concrete seawall stretching for miles along the Gulf of Mexico. In an even more audacious move, the town of Galveston decided to raise the land, starting high behind the seawall and sloping down toward the bay for drainage. Overall, officials proposed to raise the ground an average of 8 feet.

To accomplish the goal, townspeople jacked up houses on pilings, erected wooden walkways high in the air, dredged out a ship channel, and piped the slurry sand across the town and beneath the lifted buildings. Then they topped the sand with mainland soil.

Elevating St. Patrick Church, the largest of the 2,156 buildings that were raised, presented an engineering challenge because of its size, its weight, and its many pillars and arches. To prevent cracking, its weight had to be evenly distributed throughout the process. The townsmen accomplished the job, by hand, in scarcely more than a month.

By 1910, the seawall stretched along 5 miles, and much of the grade raising was complete. In 1915, the island was hit by another hurricane, said to be the equivalent of the 1900 storm. Due to the mitigation efforts, Galveston was protected from total devastation.

In 2008, a tidal wave pushed by Hurricane Ike washed ashore over Galveston, damaging at least 75 percent of the island's buildings. In the church complex, buildings that were not elevated — the school and the priests' house — flooded along with many others across the island. Underneath the church, in the crawl space left open by the elevation, floodwaters damaged ductwork as well.

Inside St. Patrick, however, it was as if Ike never happened. "When they elevated this church by 5 feet, they saved it," said the Rev. John Bok, parish priest. "Without their work, we would have had terrible damage inside our church, not only in Hurricane Ike but in other storms, too."

Rev. Bok pointed to the faint debris line left by floodwaters on the church's foundation, about 5 feet above today's street level. Had the church not been elevated, water would have risen 4 to 5 feet high inside the sanctuary.

Also contributing to St. Patrick's survival were the plastic storm windows the congregation had installed in 1991 to protect the ornate windows from wind-driven rain and debris, Rev. Bok said. "One plastic sheet was broken during Hurricane Ike, but the covering did its job, and there was no damage to any of the stained-glass windows," he said.

Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region VI**

State: **Texas**

County: **Galveston County**

City/Community: **Galveston**

Key Activity/Project Information

Sector: **Private**

Hazard Type: **Hurricane/Tropical Storm**

Activity/Project Type: **Elevation, Structural**

Structure Type: **Concrete, Reinforced**

Activity/Project Start Date: **01/1991**

Activity/Project End Date: **Ongoing**

Funding Source: **Private funds**

Activity/Project Economic Analysis

Cost: **Amount Not Available**

Non FEMA Cost: **0**

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **No**

Value Tested By Disaster? **Yes**

Tested By Federal Disaster #: **1791 , 09/13/2008**

Repetitive Loss Property? **Unknown**

Reference URLs

No URLs were submitted

Main Points

No Main Points were entered.

Main Points



St. Patrick Church, one of the oldest churches on Galveston Island, was elevated by 5 feet, by hand, in 1907.